MIDDLE EAST REGIONAL CO-OPERATION (MERC)

IN ANIMAL HEALTH

BETWEEN

THE VETERINARY SERVICES AND RELATED INSTITUTIONS OF

EGYPT, ISRAEL, JORDAN AND THE PALESTINIAN AUTHORITY

IN COLLABORATION WITH TUFTS UNIVERSITY

INTERNAL MID-TERM REVIEW

STRENGTHENING REGIONAL COLLABORATION

IN ANIMAL DISEASE AND ZOONOSES CONTROL IN MIDDLE EAST

PROJECT

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Contents

Foreword

This report is prepared with the reader in mind. The text is intended to be easily readable, a patchwork of observations and recommendations that follow as direct results from the findings. In the eyes of the reviewers such a sequence seems logical.

The reviewers that have written this report consider the interested readers to be the scientists, researchers and administrator involved in the project. The writers sincerely hope that these readers identify with the reviewers to look at the project from a (short) distance as the reviewers have tried to do.

Many of these potential readers patiently explained the many details of project activities and answered the many questions asked. The reviewers are very grateful to all those that were willing to do so, sharing facts, figures and feelings with them during their visit to the region.

The opinions expressed in the report are those of the reviewers only and they take full responsibility for the statements included in the text.

Introduction

The activities of the Strengthening Regional Collaboration in Animal Disease and Zoonoses Control in Middle East Project were the subject of a mid term review in January 2000. The review team consisted of two members, Jeffrey C. Mariner and Rob C. de Rooij, both veterinarians. They were appointed by the Project's US based administrator, Tufts University, to undertake an internal review as had been prescribed in the original proposal for the MERC Animal Health Project. Separately from this review USAID, the Project's funding agency, has later undertaken an independent review of the Project in March 2000.

The report is presented in five chapters. After the introduction the review framework is outlined. This is followed by the reviewers' general conclusion. In the next chapter detailed observations and findings directly are provided in combination with recommendations. General conclusions are given in the last chapter. The guidelines for this review are found in Annex 1. The itinerary of the review team is provided in Annex 2, with a more detailed list of visits and persons met in Annex 3.

The review was undertaken as a series of interviews of directly concerned scientists, researchers and administrators during a series of two-day visits to each of the four parties. The interviewees comprised those directly involved in the execution of the Project as well as with those more marginally active and those that were for some reason not involved but could be considered relevant. Most unfortunately, the interviewees included very few livestock keepers.

Review Framework

The starting point in the review process is to identify the project objectives and then measure progress towards achieving those stated objectives. In successful projects, project objectives and activities will often evolve during the course of implementation in light of interim results. Such an evolution is a positive indication that the project is generating information, insights and lessons learnt that are actually being internalized by the implementing institutions. Part of the task of any review is to document this growth process.

The Strengthening Regional Collaboration in Animal Disease and Zoonoses Control in Middle East (MERC Animal Health) Project Proposal states that 'The primary goal of the ... Project is to improve the health and nutritional status of people in the region via increases in the productivity of the livestock sector through the development of methodologies, techniques and strategies for the effective control of important animal diseases and zoonoses of the region (pg 9).' The second goal is to facilitate the Peace Process through the stimulation of interaction and collaboration between the animal health establishments of the participating authorities.

Five main purposes are identified as the promotion of:

- Applied research on brucellosis, foot and mouth disease (FMD) and neonatal diseases to identify significant agents of disease in cattle, buffalo and small ruminants.
- Training to improve diagnostic capabilities in the region
- Communication of information on disease prevalence and epidemic threats
- Regional cooperation between scientists and staff
- Sustainable mechanisms for continuing regional cooperation

The activities range from basic to applied research through surveillance to animal health strategy and policy formulation. These goals and purposes were largely handed down

unchanged from a preceding MERC project, Tri-National Animal Health Project (TAHRP). The summary conclusion of the TARHP evaluation noted that 'the scientific and technical aspects of the TAHRP project [sic] were extensive and quite ambitious (pg 6).' However, the MERC Animal Health Project incorporated two new partners, the Palestinian Authority and Jordan, with substantially different research and institutional capacity in comparison to the original TAHRP participants, Egypt and Israel. Thus, the complexity and degree of difficulty in coordination of joint research was augmented substantially over what was originally characterized as 'ambitious.'

The Project Proposal identifies a number of criteria for evaluation of the Project (pg. 17) and these have been expanded upon by the Tufts' Principal Investigator (PI) (Annex 1). Several of these are quantifiable indicators, which can in fact be measured or tabulated. One criterion, joint publication was probably premature for a mid-term review. In the best of situations, it takes 6 months to 1 year to shepherd referred publications through the review and publication process once the research and writing process are completed. These will be presented below.

It is important to note, however, that within the context of this review it was not feasible to draw inferences from changes of 'the health and nutritional status of the people' regarding the impact of this project. For example, changes in the incidence of human cases of brucellosis were discussed in Israel and Jordan, however some experts attributed higher case rates to vaccine induced disease (Israel) whereas others attributed lower rates to the positive impact of vaccination (Jordan). In more general areas, the relationship between scale of animal health, national livestock production and consumption figures and the modest investment in research this project represents relative to the scale of the national livestock economies suggest that such a method of assessment is too indirect to measure project impact.

Further, some of the regional participants have only limited systems in place to measure 'morbidity and mortality in different livestock species.' This was not surprising as general disease monitoring and reporting systems are only now being established in many first world countries. In Jordan, the Epidemiology Unit generated animal health statistics, however there seemed to be no end user for this information and it was difficult to assess the quality and completeness of reporting. Appropriate actions to enhance surveillance and monitoring systems are addressed in the report. However, for the purposes of this review, activity levels will have to serve as surrogate measures of these direct indicators of well-being.

It is also important to note that the present MERC Animal Health Project has not been implemented in isolation. It builds upon the previous efforts of Tri-National Animal Health Research Project (TAHRP) in Israel and Egypt and is closely integrated with similar efforts sponsored by other donors such as the European Union (EU). It is not possible to fully dissect out the impact of each effort, as the whole is greater than the sum of its parts.

General Conclusions

The general conclusions are to be read in a context where it must be realized that the complexity and degree of difficulty in coordination of joint research, already defined as 'ambitious' under TAHRP was much increased.

The Project has been successful in laying the groundwork for further technical advances in the methods and strategies available nationally and regionally for the diagnosis and control of brucellosis, foot and mouth disease and neo-natal disease. In addition, the Project has contributed to a growing consensus regarding standardized diagnostic methods and the use of regional reference centers.

The Project has been highly successful in building interaction, cooperation and a spirit of mutual interest between the four entities. In this regard, the Project has met its secondary goal of advancing the peace process through the promotion and facilitation of interactions between staff, institutions and agencies of Egypt, Israel, the Palestinian Authority and Jordan.

The Project is found at the beginning of the its third and final year to be loosing momentum[1]. This is due to the differences between levels of achievement between the parties, making cross-boundary co-operation increasingly difficult. The initial orientation and training visits have been undertaken, and while it may now be time to jointly undertake research activities the difference in performance capabilities of the respective central veterinary laboratory facilities is not contribute to a sufficient level of confidence between the parties to actually work together. There is also a distinct lack of enthusiasm to invite fellow researchers to visit other countries. Most of the visits that took place were to Israel and Egypt, very few, if any, were to Jordan and the Palestinian Authority.

The achievement levels early in 2000 are indicated in the matrix below, with targets set and results subjectively interpreted by the reviewers.

Reviewers Implementation Matrix: MERC Animal Health Project, after 2.5 out of 3 (later 4) years

	Research Planning	Training Planning	Equipment Purchase	Training Courses	Field Research	Laboratory Research
Targets (%)	90	90	50	50	75	50
Egypt	90	10	50	10	50	50
Israel	50	80	50	50	10	10
Jordan	10	20	10	50	20	10
Palestinian Auth.	80	80	10	60	10	10

The rates of expenditure per party varies, but the general conclusion is that there is severe under-expenditure of the programs of some of the parties, and the associated lack of administrative expedience of these parties to ensure improvement in this matter. Later in 2000, this situation had not notably improved. It was also noted that some of the parties had difficulty in trying to adhere to the contractual standard given in the respective contracts on financial reporting.

At the beginning of 2000 on a country-to-country basis, the reviewers found a running program in Egypt. However, some of the funds are being spent as salary supplements for those involved. In Israel, the reviewers noted that Foot and Mouth Disease was the major beneficiary as the funds were mainly used in the completion of the FMD Center in that country. In Jordan very little was achieved and communication between relevant parties, such as between the co-PIs veterinary services headquarters staff and the staff at the central laboratory, was noted to be difficult. Similarly, some co-PIs did not seem to have ready access to the PI. In the Palestinian Authority implementation was behind schedule, reportedly caused by initial problems with the funding channel resulting from donor requirements.

[1] At the time of editing this report, it is understood that the project has been extended with a fourth year.

Findings, Considerations and Recommendations

Administrative Structure

The review team noted Project implementation had been slowed by the following concerns in selected instances:

- Not all appropriate institutions were involved in all countries (Jordan).
- Individuals appointed to project positions were over-committed or were transferred and were unable to execute tasks in a timely manner (Jordan and Palestine).
- Within-country communication was constrained beyond a level consistent with effective teamwork (Jordan and Palestine).
- Incentives for field work, if any, were not related to the quantity and quality of work (Jordan, Palestine, and Israel).
- Incompatibility between the countries' funding procedures and financial record keeping systems and those of the project administrator (Tufts).

With the exception of insufficient technical assistance, the basic concept of the Project's structure is appropriate. However, more detailed definition of the structure is needed to streamline implementation. In addition to PI and Co PI, all countries that do not have a financial officer in place designate a financial officer who is responsible for the generation of financial statements and requests for funds. Egypt has had an effective financial officer in place since the beginning of the Project and the Tufts PI trained a Jordanian financial officer in Project procedures concurrently with the visit of review mission. Specific guidelines or Terms of Reference should be developed by the Tufts PI in dialogue with national PI for the PI, Co PI and financial officer roles to assist in an appropriate and efficient division of tasks.

Such terms of reference should also offer guidance on the level of assignments within existing administrative structures in order to avoid the designation of over-committed officials to routine project functions. It is recommended that senior officials at the level of CVO or higher not be designated as project officials.

Further, assignments should reflect the technical expertise of the individual and requirements of the post. It is not feasible to convert field epidemiologists into laboratory scientists and vise-versa on the basis of short-term training available through the project. In Jordan, in particular, Co PIs did not have all the skills necessary for the successful implementation of all three subcomponents of the project. Research projects that require both epidemiological and laboratory skills may require the designation of two experts.

As part of the terms of reference for PI and Co PI, time planning and reporting guidelines should be specified**.** It is recommended that the PI and Co PI set a schedule jointly for all project activities. Co PI should report quarterly on progress relative to the work plan and schedule. The reports of the Co PI should be annexed to a report of the PI and forwarded to the Tufts PI.

It was noted that Egypt seems to have a relatively much better level of cooperation between academic and field institutions resulting in timely sample collection and outbreak investigation leading to laboratory diagnosis. The Egyptians stated that they owed this success to appropriate sharing of the budget leading to sufficient motivation for all concerned institutions. This success was despite an overall reduced budget under the MERC Animal Health Project as compared to TAHRP. This suggests that the largest single impact that the budgeting process can have is through the provision of appropriate incentives. This does not refer to provision of 'entitlement' payments such as per diem. Participants should be consulted and asked to identify quantity and quality based incentives through a process of negotiation that relate directly to the work accomplished. In implementing this recommendation, the project needs to focus on establishing

a participatory process where all stakeholders have a voice. The content of the process in terms of proposal for incentives should come from the participants themselves. The project and national administration are key stakeholders and have the important task of guiding the process and assuring that the incentives agreed upon have adequate accountability. It needs to be assessed later if this system had positive contributed to the Project results.

Communications

Good communication is a component of an institution's ability to respond and capacity to implement projects. The reviewers noted the need for greater flow of information within country. In some countries, meetings were either held infrequently or not at all. In others, formal permission was needed to carry out each round of contact with field staff. In the case of Jordan, written permission is required from levels intermediate between the Co PI and PI for Co PIs to speak with the PI.

In order for veterinary services and research networks to be effective, information flow must be multi-directional. That is both up and down the chain of command as well as laterally with sister departments and institutions. It ultimately rests with leadership to set the tone and degree of openness of communication.

At the regional level, workshops and annual meetings have provided an excellent forum for information exchange and dialogue. In this regard, the Project has been highly successful. The need for more frequent informal communication between researchers in different countries through correspondence, telephone and E-mail was mentioned in all countries. In order for this to occur, individual E-mail accounts should be established for all project participants.

Beyond E-mail, training needs on the use of other resources on the Internet such as the Pub med literature search site and the features of the ProMed list server are needed. It is recommended to use Project funds to get as many researchers as possible to appreciate the Internet by providing real-time computer access, either directly or indirectly, e.g. Internet-café subscriptions.

A clear need for exchange visits between countries of individual scientists working on specific topics was also identified. As part of work program formulation, scientists should identify their counterparts in partner countries and schedule such exchange visits. Visit programs should include dialogue on research agendas as well as demonstrations of techniques and research methods.

National and Regional Animal Health Strategies and Program Development

One of the main purposes of the project is to develop regional strategies for the surveillance, diagnosis and control of brucellosis, FMD and neo-natal disease. In this endeavor, the project has been moderately successful. The pre-proposal prepared as part of the unsuccessful initiative for a next phase of the present project was the prototype of a regional prioritization of tasks and objectives. However, the priorities and strategies outlined in this concept document lack the foundation of rigorous national analysis.

The work to date has had the important impact of identifying tentative priorities and lead to better recognition of the areas where detailed analysis and dialogue are needed. In addition to policy issues, significant technical questions of strategic interest remain to be resolved. The Project has been instrumental in identifying strategy components that require further technical analysis and/or research.

Concerning brucellosis, widely divergent views are held in regard to the appropriateness and effectiveness of strategy options. The safety of the Rev 1 vaccine in regard to vaccine agent shedding by vaccinates and possible vaccine associated animal and human illness is an area of concern. In Israel, human cases of brucellosis were diagnosed as Rev 1 induced and it was suggested that Rev 1 vaccine strain accounted for a significant proportion of cases. In the PA, authorities pointed to a decline in human and animal cases as a result of mass vaccination with Rev 1 vaccine. Concerns regarding vaccine-induced illness are documented in the scientific literature associated with the original development of the vaccine. Work by Israel scientists as part of MERC has identified unacceptable levels of abortion associated with Rev 1 isolates. The PA has undertaken a mass vaccination campaign in line with World Health Organization recommendations, but experienced localized abortion storms in the months following vaccination. Clinical descriptions and one confirmatory diagnosis indicate that border disease is a factor in the etiology of the events, however data is far from conclusive. Farmers clearly association the outbreaks with vaccination and compliance in future campaigns will be affected.

This has lead some to question the wisdom of mass vaccination programs based on the Rev 1 vaccine. Those in favor of mass vaccination suggest that overall abortion rates and human incidence are decreased by mass vaccination despite cases directly attributable to vaccination. Others state that with the known risks associated with vaccination, massive Rev 1 application is unacceptably risky and should be restricted to strategies that target control of high-risk situations and a clear benefit. Research staff, particularly in Israel, have the experience and institutional capacity to test the key hypotheses regarding Rev 1 induced disease but such experiments have not been proposed as an activity under MERC. It is strongly recommended that vaccine induced abortion and Rev 1 shedding be assessed in controlled experimental studies. A complimentary prospective observational study with vaccinated and unvaccinated cohorts designed to measure the relative risk in vaccinates abortion in vaccinates is also suggested. Finally, genetic sequence comparisons of clinical isolates believed to be Rev 1 isolates and the vaccine strain are strongly recommended.

At the national level, insufficient attention has been given to the development of national animal health programs that identify and prioritize achievable national animal health objectives in light of available resources. In fact, only Egypt could define a national process of program formulation. Although mutual objectives have been identified through MERC Project consultation, these objectives are not being implemented in all countries with the necessary resolve for success. As an example, Israel could not identify and did not appear to be pursuing a national brucellosis control program. Mass vaccination was not acceptable and slaughter-based control programs beyond the reach of budgets. Unless national focus is achieved, it will be difficult to identify points of sustainable mutual interest at the regional level.

The reviewers recommend that animal health stakeholder workshops are undertaken at the national level to identify resource levels, needs, priority objectives and sustainable strategies as part of the evolution of a sound and sustainable regional program of coordinated animal health actions. This activity would benefit from professional facilitation and the MERC Project is well placed to play this role.

In addition to animal disease control priorities, national program workshops should address the need for effective disease surveillance and reporting systems. Surveillance is often defined as the collection of animal health *information for action*. It is usually designed to detect events rather than estimate prevalence and its function is to alert decision-makers in a timely manner to critical developments. In the case of Jordan, a disease reporting system was in place. However, it was not clear that the system was responding to users needs. The national consultative process

should include the identification of surveillance system customers and customer surveys to define appropriate products that are accessible.

The stakeholder workshops should address the rationalization of functions and responsibilities between public, private and cooperative or community institutions for the provision of services. Thus, program formulation requires the participation of all concerned institutions. Along these lines, it would be advisable for national authorities to hold stakeholder meetings with the participation of all concerned institutions and segments of the animal health community. This would be a worthwhile activity for MERC to support through provision of professional participatory facilitation.

Training

It was clear that participants placed a high value on the training that had taken place to date and were actively seeking more training opportunities.

Trainers, trainees and prospective trainees voiced a number of concerns. These included:

- Were the right people being trained?
- Were the people who would actually be doing the job being selected?
- Were national budget allocations adequate to encourage optimal training programs?
- Were training institutions charging appropriate fees to assure the optimal training programs?
- Were SOPs and equipment lists available as part of the training process?
- Was the equipment in place for trainees to promptly put their new skills to work?
- Did both training recipients and training providers adequately complete training needs assessments?
- Was enough one-on-one training occurring through exchange visits?
- Was there a sufficient knowledge base in epidemiology to complete the proposed work plans?

The reviewers received reports from both trainers and prospective trainees that key people were being over-looked in trainee selection and that some inappropriate candidates were receiving training. This was especially the case in Jordan. The reviewers did not feel that much inappropriate training had taken place, but were concerned that key technicians or staff veterinarians that actually carried out the work were not being prioritized. One can only be selected for continued training after other staff irrelevant to the Project had been the beneficiary of travel under the Project. Breadth and depth of staff training is desirable if the skills base is to be sustainable. In the case of laboratory test training it may be desirable to present separate courses for veterinarians and technicians in order to reduce competition for training slots and assure programs properly tailored to participants. Training should be based on needs within the Program and not to reward members of staff not directly involved with the Project as was occurring in Jordan and the PA. It is recommended that the Co-PIs and their respective staff are important recipients of the training activities.

It is the reviewer's recommendation that training institutions should calculate and charge realistic training fees that cover the cost of materials and staff time. These fees are to be paid from the project budgets of recipient nations, i.e. the trainee pays.

It was also noted that trainees did not appear to have come away from training with basic equipment lists and were struggling to identify equipment needs in order to get started. It was

not clear to what degree these materials were provided or not provided as part of the courses. In any event, greater emphasis on standardized lists of basic recommended equipment for ELISA and PCR is indicated. A recommended solution is that training institutions publish SOPs with equipment lists on the Move-In web page. Tufts should also be referring to such lists, as a flexible guide to procurement needs.

The reviewers recommend that all participants take a more programmatic approach to identifying training needs. Identification of training needs/plans should logically follow from the development of national and regional animal health strategies and programs. These training plans should include the numbers and levels of trainees and the exact skills needed. The plans should also identify the appropriate type of training programs, ranging from short-term to formal degree programs. The plan should identify resources, both in-kind and financial, as well as resources to be identified or links to be established. Preparation of the training plans should be coordinated by the PIs with direct input from the Co PIs as well as concerned scientists and technicians.

Lastly, both the participants and the reviewers felt that there was opportunity for significant amounts of training to take place through exchange visits. An appropriate starting point is for national authorities to develop a list of counterpart experts to invite and then extend invitations. If each country invited one counterpart per 3 months, the project would complete a complete round of exchange visits by the end of the project. This may also overcome some noted reluctance by some of the parties to make use of well-qualified and relevant regional expertise.

The reviewers identified the need for a regional veterinary epidemiology and economics training program. Epidemiology is rapidly being recognized as a key discipline in modern veterinary service delivery and disease control. Accurate assessments of disease prevalence, transmission and maintenance mechanisms as well as economic impact should form the basis of disease control decision-making and disease control management. All three of the MERC Animal Health Project's core activities relate directly to achieving a better understanding of disease epidemiology and control at the population level.

The epidemiology training program should be a short course that targets career professionals. The following topics are suggested as a core curriculum:

- Infectious disease epidemiology
- Observational studies
    - Sampling
    - Bias
- Surveillance methods
- Participatory Epidemiology
- Disease Control Strategy
    - Risk factor assessment
    - Mechanisms of endemism
    - Effective intervention methods

Sustainability of the Regional Approach

The regional approach enjoys strong support from all those involved. Most individuals interviewed were well aware of the expertise available in partner countries and valued the process of regional dialogue and consultation as a source of enrichment. The overall impression was that even more contact was a perceived need and goal of the majority of participants.

The dialogue regarding FMD reflected both the progress made under MERC and the issues remaining to be resolved. Effective control of such a highly contagious disease can only be achieved through regional programs where smaller countries with complex borders are concerned. The MERC Animal Health Project has identified better FMD surveillance and sero-surveillance in border areas to elucidate virus serotypes in circulation as a regional objective. Milestones include the reporting of a major FMD outbreak by Jordan on the Move-In website and increasing recognition of Israel as a reference facility for FMD in the region. It was evident, however that confusion existed regarding the distribution of serotypes in the region and that sero-surveillance was being highlighted as an objective method to build confidence in reporting.

Accurate reporting and surveillance is a prerequisite for effective control and the way forward is through the strengthening of confidence in reporting. This is an area were the identification and reporting of surveillance performance indicators would strengthen cooperation. Examples of performance indicators include number of vesicular disease outbreak investigations carried out per 100,000 animals, percent of outbreak investigations leading to confirmed diagnosis and national sampling rates for sero-surveillance. The reviewers recommend that sero-surveillance programs and field sampling receive renewed emphasis and that dialogue is held to identify the mutual advantages of accurate surveillance at the regional level.

The Project has established the Regional Oversight Committee (ROC), referred to as 'The Rock', as a consultative body where Chief Veterinary Officers (CVOs) meet to discuss project issues as well as regional animal health matters in general. There is some concern on the part of veterinary services management and the reviewers that not all CVOs would be able to attend in the absence of project funds to cover the costs of participation. The ROC also suffers from the liability that it was defined within the context of a project without any formal decision regarding its status beyond the project.

One way to establish the sustainability of ROC as a regional consultative institution for CVOs is for the Project to request formal consideration of the issue. The best approach would be for the ROC, as the Project steering committee, to debate its long-term role and then make recommendations for a decision to member governments. The request for a decision should incorporate terms of reference that originate from the ROC itself.

Coordinated Research

The project has been highly successful in developing coordinated research agendas in the four participating countries. The current phase has not been as successful as TAHRP in generating truly joint research. This is in part due to the fact that four countries are now involved and that these participants have widely divergent capacities to undertake research. Where four partners are concerned, joint research is a rather complex management objective. Although more coordination and joint activities should be encouraged, it was the reviewer's opinion that the current level of coordination reflected positively on the project and the goodwill of the participants.

Observational epidemiological studies formed a major component of the research program in all countries for all project areas: neonatal disease, brucellosis and foot and mouth disease. It was noted that in most cases convenience, or opportunistic sampling methods, were used rather than randomized sampling. Although convenience sampling may be justified in some instances, it can introduce a significant degree of bias in the results. Whenever feasible, researchers are encouraged to use random sampling techniques when making estimates. It should be noted that the TA emphasized the importance of random techniques where the objectives of the research are to make estimates, however the message was not heard. Epidemiological studies and

surveillance based on convenience samples have value as surveillance systems and in the detection and isolation of as yet unrecognized or emerging pathogens, but are generally not suitable systems for making measurements of disease prevalence or importance at the population level. Economic analysis based on epidemiological 'measurements' made from studies based on convenience samples are probably not justified and may actually be misleading. Some economic reports cited by Egypt on the financial impact of neonatal interventions were quite remarkable in this respect[2].

In the case of sentinel systems for neonatal disease in the PA, sentinel farms were being selected mainly on the criteria of the willingness of the management to participate over the long term. This is an important criterion, however one must also assure that sentinel sample is representative of the population under study. It is an established fact that the quality of management is a key determinant in many neonatal diseases. It is also a reasonable supposition that cooperative farmers are probably progressive farmers with higher management standards. Thus, the potential for bias is especially pertinent to the neo-natal studies in any country.

It was also noted that considerable effort had been invested in designing a single neonatal questionnaire for use in all countries. Although all countries had participated in design of the questionnaire at workshops, it was apparent to the reviewers that only two countries were actually intending to use that questionnaire. In one of these two countries, a field veterinarian who had pre-tested the questionnaire stated that 75% of the questions were irrelevant. The reviewers felt that this was more a reflection of a lack of involvement of the field veterinarian in question formulation or a lack of background training on the use of the questionnaire than a technical short coming of the questionnaire. Although there are recognized techniques for the construction of questionnaires, questionnaire design is a creative and somewhat personal activity. In order for a questionnaire to be well accepted and properly administered, both field and headquarters staff need to be involved in the design and understand the rationale behind each question. It is recommended that the neonatal program focus its efforts on regional coordination through assuring the quality and appropriateness of programs, sound sample selection practices and avoidance of bias rather than attempting to develop identical methodologies, content and questionnaires. Alternatively, the neonatal program should not be continued in future projects.

Technical Assistance

The broad technical goals of the MERC Animal Health Project require technical assistance embracing a range of specializations, especially in light of the expansion of the program to four partners. The research components called for excellent scientific credentials to support the design of experimental and observational studies, however the objectives of the project required more than just the design and execution of research. The regional and developmental nature of the project require experience in project management, policy analysis, institution building, participatory approaches as well as epidemiological approaches adapted to developing countries.

The technical assistance provided through Tufts University during the first phase of the Project was strongly science-based and made significant contributions to the quality of research. The national authorities as well as the reviewers recognized the appropriateness of the selection of an epidmiologist as TA. However, technical input was stretched over four parties and more work is still needed in this area. Despite good council, several study design issues are cause for concern. As an example, risk factors for neo-natal disease are highly management dependent yet most of the studies are proposing to estimate prevalence rates from sentinel farms selected for

[2] Reference is made to statements in the TAHRP end of project report.

their willingness to collaborate with the veterinary services. As cooperative farmers are also frequently progressive farmers, estimates made on such farms are likely to be severely biased in comparison with more typical management situations.

Technical assistance (TA) throughout the remainder of the program would be beneficial and is highly recommended. In the future, TA inputs should attempt to balance scientific, developmental, institution building and managerial requirements. The feasibility of making supplemental funds available for this end should be fully explored. The added value to the Project would more than outweigh the cost. Although all four countries would benefit from continued technical assistance, Jordan and the Palestinian Authority would benefit the most. In particular, the need for participatory facilitation to assist in the development of more effective project communication and management frameworks was identified. It was thought that suitable expertise in participatory approaches is probably available within the region as local expertise.

Several participants identified the desirability of re-introducing short-term enrichment visits by experts from outside of the region. In particular, it was thought that invited speakers, or subject matter specialists would be a valuable addition to conferences and training workshops. The need for input from practical epidemiologists experienced in the developing world was identified and some thought was given to the design of a short course to be based within the region. The financial structure of the Project places all operational funds in the hands of the four participant countries. It is recommended that the participant countries prepare TOR for enrichment/training visits and budget the necessary funds.

Lists

LIST OF THE NUMBERS OF PERSONS TRAINED IN NEW SCIENTIFIC METHODOLOGY FOR DISEASE SURVEILLANCE, DIAGNOSIS, AND CONTROL MEASURES.

Trainees		Course description	Institute	Course dates
No.	Origin			
1	Egypt	FMD diagnostic methods, epidemiology, control measures	Kimron Veterinary Institute	9–13 May ‘99
5	Jordan	FMD diagnostic methods, epidemiology, control measures	Kimron Veterinary Institute	9–13 May ‘99
2	PNA	FMD diagnostic methods, epidemiology, control measures	Kimron Veterinary Institute	9–13 May ‘99
2	Egypt	FMD diagnosis including ELISA	Kimron Veterinary Institute	5–15 July ‘99
1	PNA	FMD diagnosis including ELISA	Kimron Veterinary Institute	
2	Jordan	FMD diagnosis including ELISA	Kimron Veterinary Institute	Feb/Mar 2000*
1	Egypt	Neonatal field investigations	Kimron Veterinary Institute	1999
5	PNA	Neonatal field investigations	Kimron Veterinary Institute	1999
5	Jordan	Neonatal field investigations	Kimron Veterinary Institute	7-12 March ‘99
4 *	Jordan	Brucellosis laboratory techniques	Kimron Veterinary Institute	Jan/Feb 2000*
3	Jordan	MSc in Veterinary Medicine	Jordan University for Science and Technology	1999 – 2001

* Planned for implementation within next two months

TRAINING COURSES

FMD diagnostic methods, epidemiology and control measures
Completed

Dr Abu Bakr Mohamed Ahmed, FMD Department, Serum and Vaccine Research Institute, Abassia, Egypt
Dr Nasser Hawamdeh, Co-PI, Epidemiologist, Epidemiology Unit,Veterinary Department, Amman, Jordan
Dr Mohamed Al Ali, District Veterinaruy Officer,Veterinary Department, Irbid, Jordan
Dr Majdah Hamdani, District Veterinary Officer, Veterinary Department, Jordan
Dr Ibrahim Al Ataiem, Veterinary Department, Jordan
Dr Nedal Al Johani, Veterinary Department, Jordan

FMD diagnosis in unsecured laboratories
Completed
Dr Wafaa Al-Sayed Hassan, FMD Department, Serum and Vaccine Research Institute, Abassia, Egypt
Dr Abeer Ahmed Tala'at, FMD Department, Serum and Vaccine Research Institute, Abassia, Egypt

* Planned (20 February – 2 March 2000)
Dr Waleed Al Okour, Head, Virology, Veterinary Laboratory, Veterinary Department, Amman, Jordan
Dr Amer Tahaineh, Veterinary Officer (MSc student JUST), Veterinary Department, Jordan

Neonatal field investigations
Dr Fuad Al-domy, Co-PI, Head Animal Health & Epidemiology, Veterinary Department, Amman, Jordan
Dr Ahmad Al-domy, District Veterinary Officer, Veterinary Department, Jordan
Dr Laura Sawalha, Madaba, District Veterinary Officer, Veterinary Department, Jordan
Dr Nadmee Abu Zaeed, District Veterinary Officer, Veterinary Department, Jordan

Brucellosis diagnostic techniques
Planned (January – February 2000):
4 (as yet unconfirmed) trainees including
Dr Randa Akasheh, Co-PI, Epidemiologist, Epidemiology Unit,Veterinary Department, Amman, Jordan
Dr Mohamed Bassam Al-sharman, Acting Director, Veterinary Laboratories, Veterinary Department, Amman, Jordan

LIST OF THE NUMBERS OF EXCHANGE TRAVELS, VISITS, AND TRAINING SESSIONS ACCOMPLISHED

TRAINING SESSIONS

FMD diagnostic methods, epidemiology and control measures, Kimron Veterinary Institute, Israel in one session
FMD diagnosis in unsecured laboratories, Kimron Veterinary Institute, Israel in 3 sessions (2 completed)

CONFERENCE VISITS

First International Conference on Sheep and Goat Diseases and Productivity, Irbid, Jordan
Dr Ayman Suaibi, Co-PI, Deputy Director General, Animal Health & Veterinary Services, PNA
Dr Menachem Banai, Head National and OIE Reference Laboratory for Brucellosis, Kimron Veterinary Institute, Israel

LIST OF THE NUMBERS OF WORKSHOPS, SEMINARS AND PROJECT REVIEWS CONDUCTED

Workshop on the Control of Foot and Mouth Disease, Kimron Veterinary Institute, Israel, May 1999

Workshop on Neonatal Losses in Sheep and Goats, Kimron Veterinary Institute, Israel, March 1999

First annual workshop 'Animal Health Issues in the Middle East', Ramallah, 27-29 October 1998, sponsored by USAID-MERC and EC-RAHCP

Second annual workshop 'Animal Health Issues in the Middle East', Aswan, 22-25 November 1999, sponsored by USAID-MERC and EC-RAHCP

LIST OF THE NUMBERS OF PUBLICATIONS (PARTICULARLY JOINT PUBLICATIONS) AND PATENTS

It remains uncertain what was published when, however the parties reported the following articles in the list of papers that were presented at the occasion of the First International Conference on Sheep and Goat Diseases and Productivity, held in October 1999 at the Faculty of Veterinary Medicine of the Jordan University of Science and Technology in Irbid[3].

Banai, M. L.G. Adams, T.A. Ficht. Brucella attenuation: presumptive meaning and relevance to vaccine properties.

Abo-Shehada, A. Robinson. Risk factors for human brucellosis in Jordan.

LIST INDICATING FLOW OF FINANCE AND ABSORPTION (US$) PER DECEMBER 1999

	Egypt	Israel	Jordan	Palest. Auth.
No. of advances received	4	1	1	2
Amount received	156,213	41,000	42,500	124,851
Amount spent	139,898	150,000	24,150	124,320
Total budget	350,000	350,000	400,000	592,794
Balance	210,102	200,000	375,850	468,474
Balance (%)	60 %	57 %	94 %	79 %

[3] All papers presented at this conference will reportedly be published in a special issue of Small Ruminant Research.

MIDDLE EAST REGIONAL CO-OPERATION (MERC)

IN ANIMAL HEALTH

INTERNAL MID-TERM REVIEW

ANNEXES

MERC ANIMAL HEALTH PROGRAMME, INTERNAL MID-TERM REVIEW

ANNEX 1

Guidelines for Mid-Term Review MERC Project

1. Identify the stated objectives of the project.
2. Evaluate how well those objectives are being met.
3. Analyze the administrative structure of the project.
4. Determine where the project should go over the next two year.
5. Measure the level of interaction of the participating countries in
   - execution of joint research projects
   - development of common diagnostic procedures
   - development of common strategies to address animal diseases on a regional level
6. List the numbers of persons trained in new scientific methodology for disease surveillance, diagnosis, and control measures.
7. List the numbers of exchange travels, visits, and training sessions accomplished.
8. List the numbers of workshops, seminars and project reviews conducted.
9. List the numbers of publications (particularly joint publications) and patents.
10. Evaluate new communication systems developed or planned, such as the webpage, computer capabilities and newsletters.
11. Determine the level of success in reducing morbidity and mortality in different livestock species. Include measures of interaction between agencies responsible for disease control in each country and regionally.
12. Describe new problems in disease control uncovered by this project, such as the discovery of new pathogens and new strains of pathogens.
13. Determine how effective the epidemiological investigations have helped to clarify the incidence of important diseases common in the region.
14. Describe the improvements in infrastructure attributable to the project and evaluate the quality of those improvements.
15. Evaluate the level of success in sustainability of regional initiatives as measured by
    - national program policies or inter-country or regional agreements for control of livestock diseases.
    - likelihood of the continuation of the ROC as an operational entity in the region beyond the specific parameters of this project.

MERC ANIMAL HEALTH PROGRAMME, INTERNAL MID-TERM REVIEW - ANNEX 2

Itinerary, summarized travel and meeting schedule

Date & Time (January 2000)		Activity
7– 8		Travel Reviewer Dr Jeffrey Mariner from Fort Collins, Co., USA, to Middle East, arriving 16.30 at Ben Gurion airport, Israel
8		Travel Reviewer Dr Rob de Rooij from Amsterdam, The Netherlands, to Middle East, arriving 15.30 hours at Ben Gurion airport, Israel
8	Evening	Meeting with Tufts' Project Co-ordinator
9	Morning	Meeting with Tufts' Project Co-ordinator
9	Afternoon	Meeting with CARE on Palestinian program
10	Full day	Meetings with Israeli PI and Co-PIs
11	Full day	Meetings with Palestinian PI, CVO and Co-PIs
11	Evening	Travel by road from Jerusalem to Amman
12	Morning	Meetings with Jordanian PI, CVO and Co-PIs
12	Afternoon	Meeting with Staff, Faculty of Veterinary Medicine, Irbid University
12	Evening	Meeting PI and Co-PIs
13	Morning	Meetings Co-PIs, field visit
13	Afternoon	Meeting with Staff, Veterinary Laboratory
14	Morning	Travel by road from Amman to Jerusalem
14	Afternoon	Meeting with CARE Technical Assistant, former Tufts' Veterinary Liaison
15	Full day	Report preparations in Jerusalem
16	Full day	Meetings with Israeli CVO, PI, Co-PIs, Staff, Rabies Laboratory
17	Full day	Meetings with Palestinian Co-PIs, field visit
17	Evening	Travel by air from Jerusalem to Cairo
18	Full day	Meetings with Egyptian PI and Co-PIs
19	Full day	Meetings with Egyptian Co-PIs
19	Evening	Reviewer Dr Jeffrey Mariner departs from Cairo for Fort Collins, Co., USA
20	Afternoon	Reviewer Dr Rob de Rooij departs from Cairo via Tel Aviv for Amsterdam, The Netherlands

MERC ANIMAL HEALTH PROGRAMME, INTERNAL MID-TERM REVIEW - ANNEX 3

Persons met, activities undertaken and issues discussed

Date	Time	Place	People Met	Position	Activity / Subject(s) of Discussion
8	19.00-21.00	Jerusalem	Dr George Saperstein	Head, Department of Environmental and Population Health, School of Veterinary Medicine, Tufts University, Project Co-ordinator / USA PI	Briefing on general project progress and issues
9	09.00-11.30	Jerusalem	Dr George Saperstein		Project progress, PI management, accounts
9	11.30-14.30	Jerusalem	Mr Earl Wall	Country Director, CARE USA/ CARE International, Office for the West Bank and Gaza	PA component administration, management
10	09.15-10.15	Bet Dagan	Dr Itzchak Klinger	Director, KVI, Israel PI	General introduction, program arrangements
10	10.15-13.30		Dr Hagai Yadin	Head Virology Laboratory, KVI Co-PI Israel (FMD)	Progress FMD component Progress regional FMD training courses
			Ms Dalia Chai,	FMD Laboratory Technician	
10	13.30-16.00	Bet Dagan	Dr M. Banai	Head Brucellosis Reference Laboratory, KVI, Israel Co-PI (Bruc)	Progress Brucellosis component Progress regional Brucellosis training courses
			Dr Zina Beider	Brucellosis Serology Specialist, KVI	
			Dr Svetlana Bardenstein	Bacteriologist, KVI	
			Ms Miriam Baum	Brucellosis Researcher, KVI	
10	16.00-17.00	Bet Dagan	Dr Boris Yakobson	Head, Rabies Laboratory, KVI	Regional communication
11	09.00-12.30	Ramallah	Dr Mohammed Hassuneh	Director General, Veterinary Services and Animal Health (VSAH), Palestine PI	General introduction, program arrangements Progress Palestinian components
			Dr Ayman Shuaibi	Deputy Director VSAH, Head of Epidemiology, Palestine Co-PI (Bruc)	
			Dr Hisham Yousef	Director of Field Vet. Services, Palestine Co-PI (Neonatal)	
			Mr Mohammed Khaled	Senior Program Specialist, CARE Int.	
			Dr Salameh Barhoun	Visiting Veterinary Scientist, UNDP, College of Veterinary Medicine, Bagdad University	
11	14.30-17.00	Tulkarm	Dr Samir Alfuqaha	District Veterinary Officer, Palestine Co-PI (FMD)	Progress FMD component
			Dr Nizar Hamandi	District Veterinary Officer, Anepta	
12	08.30-12.00	Amman	Dr Asaad Abu Ragheb	Head, Livestock and Rangelands, Jordan PI	General introduction, program arrangements Progress Jordan components
			Dr Fuad Al-domy	Head, Veterinary Department, Jordan Co-PI (Neonatal)	
			Dr Mukhles Amarin	Assistant Secretary General, Ministry of Agriculture	

12	13.30-15.30	Irbid	Dr Nabil Hailat	Dean, Faculty of Veterinary Medicine, Jordan University of Science and Technology (JUST)	Project MSc students Potential for collaboration in project activities
			Dr Shawkat Lafi	Faculty member, JUST	
	20.00-22.30	Amman	Dr Asaad Abu Ragheb		Project work and budget planning Progress FMD and Brucellosis components
			Dr Fuad Al-Dohmy		
			Dr Randa Akasheh	Epidemiologist, Jordan Co-PI (Bruc)	
			Dr Nasser Hawamdeh	Epidemiologist, Jordan Co-PI (FMD)	
13	08.00-11.00	Amman	Dr Fuad Al-Dohmy		Progress Neonatal component
			Dr Hani Inshasi	Head, Animal Health & Epidemiology	
			Dr Nasser Hawamdeh		Epidemiology activities
13	11.30-12.30	Madaba	Dr Laura Shabib Sawalha	District Veterinary Officer, investigator (Neonatal)	General field operations, Neonatal component Govt Goat Breeding Station (IFAD)
13	14.00-16.30	Amman	Dr Mohammed Bassam	Acting Head, Veterinary Laboratories, Central Veterinary Laboratory	Laboratory support to project components
			Dr Waleed Al Okour	Virologist, Central Veterinary Laboratory	
14	17.00-19.00	Jerusalem	Dr Ashley Robinson	CARE Technical Assistant for project in Palestine, former Amman based project's Veterinary Liaison	General project progress Palestinian program
16	09.00-11.00	Bet Dagan	Dr Itzchak Klinger		Capabilities KVI
	11.00-12.30		Prof Kalman Perk	Israel Co-PI (Neonatal)	
	12.30-14.00		Dr Oded Nir	Head, Veterinary Services and Animal Health, Israel	
	14.00-15.30		Dr Eitan Rappaport	Israel Co-PI (Neonatal)	
	15.30-16.30		Dr Oded Nir		
	17.00-18.00	Tel Aviv	Dr David Sitman	Computer programmer, Manager www.move-in.org	
17	06.45-07.45	Jerusalem	Mr Earl Wall		
	08.30-14.00	Ramallah and Jericho	Dr Mohammed Hassuneh		Field Visit private sheep & goat farm
			Dr Hisham Yousef		Discussion with PA Co-PI (neonatal)
			Dr Ayman Shuaibi		Discussion with PA Co-PI (Bruc)
			Dr Georg Weiland	Veterinary Consultant / EU Technical Assistant to the PA	
			Dr Ashley Robinson	Veterinary Consultant / CARE Technical Assistant to the PA	
			Mr Shaher Al-soos	Agricultural Engineer, PNARC	Filed visit
			Mr Rami Sawalha	Animal Breeding Specialist	Palestinian National Agricultural Research Centre, Jericho
	15.00-17.00	Jerusalem	Dr Ernesto Domingo	Chief Technical Advisor, Palestinian Brucellosis Control Programme	Brucellosis control

			Dr Angel Ortiz	Technical Assistant, PBCP	
18	09.00-11.00	Cairo	Prof Dr Ismail Mohamed Reda	Dean, Faculty of Veterinary, Prof. of Virology - ROC Advisor, Egypt PI	Progress Egyptian component
			Prof Dr Mohamed Refai	Prof. of Microbiology, Faculty of Vet. Medicine, Cairo Univ, Egypt Vice PI	
			Dr. Shoukry Shafik Guirguis	Chief Information System – GOVS	
			Mdm Attiat El Menshawy	Director General, Agricultural Foreign Relations	
			Prof. Mohamed Abdel Hamid Shalaby	Chairman Department Virology, Faculty of Vet. Medicine, Cairo University, Egypt Co-PI (neonatal)	Egypt neonatal component
	11.30-12.30		Prof Dr Hassan Aidaros	Chairman GOVS	ROC sustainability, disease control policies
			Dr Mohamed Allam	Director General of Preventive Medicine	FMD trans-boundary issues
	12.30-14.00		Dr Adel Fayek Farid	Deputy Director, Animal Health Research Institute (AHRI)	Egypt neonatal component
	14.00-15.30		Dr Samira Monir El Gibaly	Chief Researcher, AHRI, Brucella Department	Egypt Brucella component
			Dr Abdel Khalek Montaser	Researcher AHRI Brucella Dept.	
	15.30-17.00		Mdm Atiat El Menshawy		Project administration and accounts
			Ms Hoda El Refai	Accountant	
			Mrs Nibal Hussein Riad	Deputy Director General Foreign Agricultural Relations	
19	9.00-11.00		Dr Ahmed Mahmoud Daoud	Director of Vet. Serum & Vaccine Res. Institute, Agricultural Research Center, Egypt Co-PI (FMD)	Egypt FMD component
			Dr Adel Omar	Head, FMD Laboratory, VSVRI, ARC	
			Prof Dr Sami Saher	Prof Virology, Faculty of Veterinary Medicine, Cairo Univ.	
			Dr Mohamed Shawky	Researcher, Cairo Serum & Vaccine Research Institute	